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From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V94 #221  
To: Ham-Homebrew

Ham-Homebrew Digest                    Wed, 3 Aug 94                    Volume 94 : Issue 221

Today's Topics:

                  Plastic vs. Metal Transistors (2 msgs)  
                  Source for Crystals

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

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We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 3 Aug 1994 10:13:51 +1200  
From: comp.vuw.ac.nz!frc.maf.govt.nz!not-for-mail@uunet.uu.net  
Subject: Plastic vs. Metal Transistors  
To: ham-homebrew@ucsd.edu

Moulded plastic or metal can? As with most things in life, it  
depends...

Plastic and metal mostly use identical dies/bonding wires. This means  
that peak current capability and voltage breakdown levels are usually  
the same (check the data sheets!) or only slightly lower.

Thus for low duty cycle use, plastic can often be used in place of the  
metal packaged version, resulting in a reduction of board size (T0-220  
instead of T0-3), as well as weight (portable gear).

In really low duty applications, you may be able to use T0-220-  
Isolated, which does away with things like mica isolating washers and  
heat conducting paste.

Needless to say, moulded plastic transistors are cheaper, important if

you are designing for large volume production, or if you are on a tight budget :-)

Does anyone know if nasties like BeO are used in plastic 'exploding' packs? If so, a good reason to use metal for prototyping.

Hope this helps.

Cheers,

Wilbert (ZL2BSJ)

--  
Wilbert Knol, Acoustics Group, MAF Marine Research, Wellington, New Zealand.  
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AMPR:[44.147.180.88] AX25 NET/ROM TCP/IP MBX 146.625 147.075 MHz 24 hrs.

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Date: 2 Aug 1994 19:08:30 GMT  
From: dog.ee.lbl.gov!news.cs.utah.edu!utah-morgan!cs.utexas.edu!convex!  
news.duke.edu!eff!news.kei.com!yeshua.marcam.com!charnel.ecst.csuchico.edu!nic-  
nac.CSU.net!usc!howland@ihnp4.ucsd.edu  
Subject: Plastic vs. Metal Transistors  
To: ham-homebrew@ucsd.edu

In article <31m0gg\$6m2@tekadm1.cse.tek.com>, royle@tekgp4.cse.tek.com (Roy W Lewallen) writes:  
|> mjsilva@ted.win.net (Michael Silva):  
|>  
|> :Can someone explain the differences I should expect to find between  
|> :"identical" transistors in plastic and metal? My specific case  
|> :involves some PN5179s I have. Is there any case where these might not  
|> :work in a circuit designed for a 2N5179? Aside from having less heat  
|> :dissipating ability, are the plastics in any way inferior?  
|>

My recollection is that the 2N5179 is a four terminal transistor, with the forth lead connected to the case. It is a UHF transistor, with fte of 1.8GHz or so, and it may be of help in some circuits to be able to ground the metal case. I'm surprised that a plastic '5179 is available.

-- Ralph Stirling Project Engineer

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Date: 02 Aug 1994 21:36:34 GMT  
From: ihnp4.ucsdl!agate!spool.mu.edu!bloom-beacon.mit.edu!senator-  
bedfellow.mit.edu!news.mit.edu!monta@network.ucsdl.edu  
Subject: Source for Crystals  
To: ham-homebrew@ucsd.edu

gdian22@rfc.comm.harris.com (Gary M Diana) writes:

> [ needs 455 kHz BF0 crystal ]

Yes, this is getting a bit low for fundamental AT-cut crystals, but manufacturers can certainly supply crystal resonators at 455 kHz: check with ICM or Piezo. Some cuts have useful modes at sub-kHz.

You might also consider a ceramic resonator; I think Digi-Key carries these (from muRata or Toko). The technology is the same as the ceramic filters you mention. Lower Q, thus higher phase noise. Also, you can divide down from a crystal source at, say, 4.55 MHz. (Diode mixers like the nice square waveform, but this is nothing to get excited about for a BFO application.) Finally, if you want to cobble up something quick, don't overlook a simple LC oscillator, which can be quite stable.

Peter Monta monta@image.mit.edu  
MIT Advanced Television Research Program

End of Ham-Homebrew Digest V94 #221

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